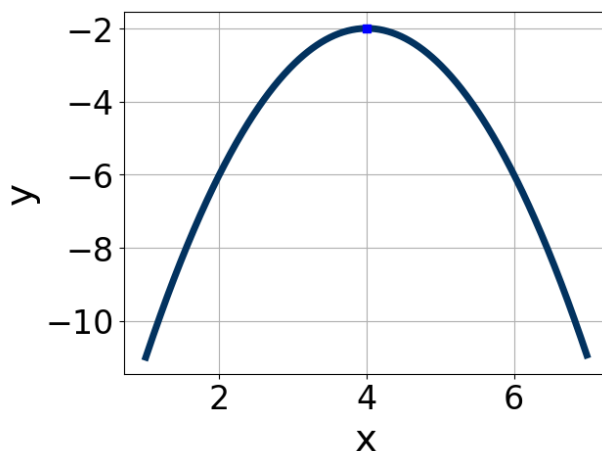


1. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a, b$ , and  $c$  belong to.



- A.  $a \in [-1.3, 0]$ ,  $b \in [4, 10]$ , and  $c \in [-18, -16]$   
B.  $a \in [0.4, 1.5]$ ,  $b \in [4, 10]$ , and  $c \in [10, 15]$   
C.  $a \in [0.4, 1.5]$ ,  $b \in [-10, -5]$ , and  $c \in [10, 15]$   
D.  $a \in [-1.3, 0]$ ,  $b \in [-10, -5]$ , and  $c \in [-18, -16]$   
E.  $a \in [-1.3, 0]$ ,  $b \in [-10, -5]$ , and  $c \in [-14, -9]$

- 
2. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$25x^2 - 60x + 36 = 0$$

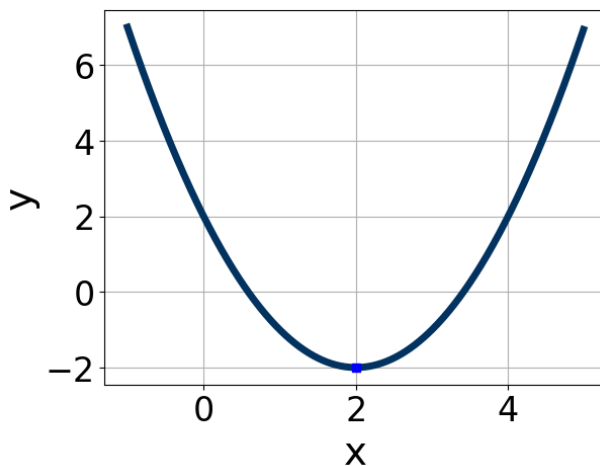
- A.  $x_1 \in [-0.17, 0.3]$  and  $x_2 \in [5.29, 6.08]$   
B.  $x_1 \in [0.41, 0.76]$  and  $x_2 \in [2.12, 2.75]$   
C.  $x_1 \in [0.34, 0.44]$  and  $x_2 \in [2.63, 4.78]$   
D.  $x_1 \in [1.11, 1.3]$  and  $x_2 \in [0.47, 1.4]$   
E.  $x_1 \in [29.67, 30.12]$  and  $x_2 \in [29.21, 30.44]$

3. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d)$ ;  $b \leq d$ .

$$24x^2 + 2x - 15$$

- A.  $a \in [10.31, 12.79]$ ,  $b \in [-3, 0]$ ,  $c \in [1.45, 3.07]$ , and  $d \in [0, 7]$   
B.  $a \in [1.21, 2.53]$ ,  $b \in [-3, 0]$ ,  $c \in [11.98, 12.04]$ , and  $d \in [0, 7]$   
C.  $a \in [0.14, 1.79]$ ,  $b \in [-20, -12]$ ,  $c \in [-0.18, 1.72]$ , and  $d \in [18, 22]$   
D.  $a \in [2.38, 4.11]$ ,  $b \in [-3, 0]$ ,  $c \in [4.37, 6.28]$ , and  $d \in [0, 7]$   
E. None of the above.
- 

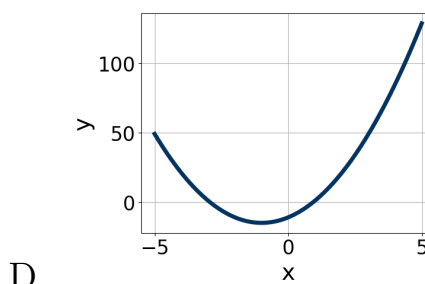
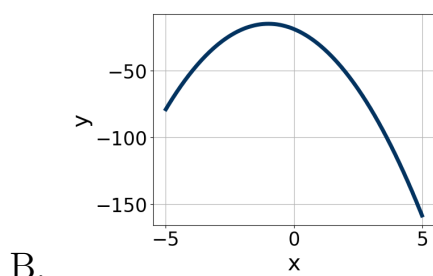
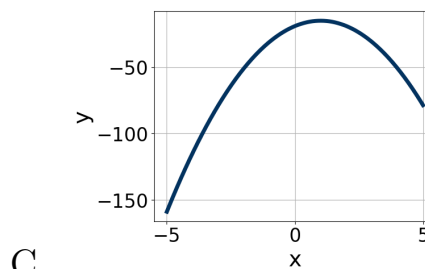
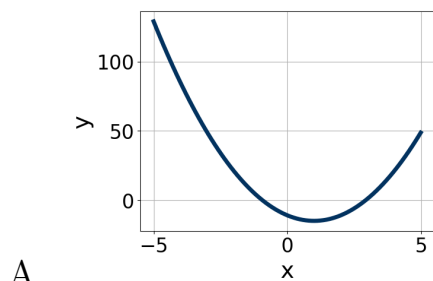
4. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a$ ,  $b$ , and  $c$  belong to.



- A.  $a \in [1, 3]$ ,  $b \in [-6, -3]$ , and  $c \in [1, 4]$   
B.  $a \in [-2, 0]$ ,  $b \in [-6, -3]$ , and  $c \in [-7, -4]$   
C.  $a \in [-2, 0]$ ,  $b \in [3, 7]$ , and  $c \in [-7, -4]$   
D.  $a \in [1, 3]$ ,  $b \in [3, 7]$ , and  $c \in [1, 4]$   
E.  $a \in [1, 3]$ ,  $b \in [3, 7]$ , and  $c \in [6, 8]$
-

5. Graph the equation below.

$$f(x) = (x - 1)^2 - 15$$



E. None of the above.

6. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$-19x^2 - 13x + 4 = 0$$

A.  $x_1 \in [-2.01, -0.76]$  and  $x_2 \in [-0.3, 0.68]$

B.  $x_1 \in [-23.26, -21.68]$  and  $x_2 \in [21.39, 22.14]$

C.  $x_1 \in [-0.7, 0.91]$  and  $x_2 \in [0.37, 1.52]$

D.  $x_1 \in [-5.5, -3.85]$  and  $x_2 \in [17.2, 17.52]$

E. There are no Real solutions.

7. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

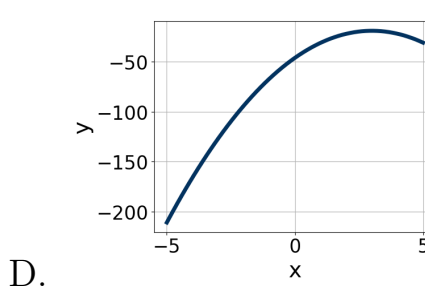
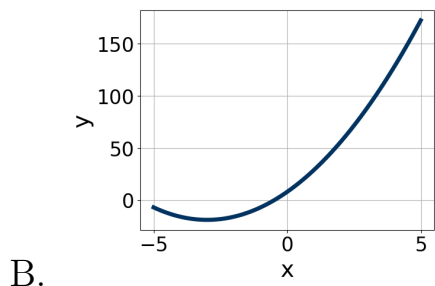
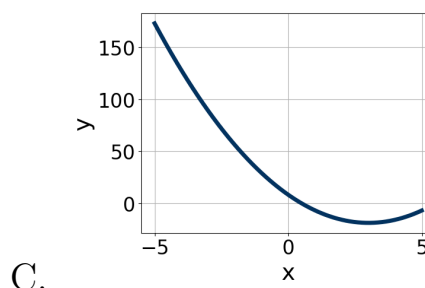
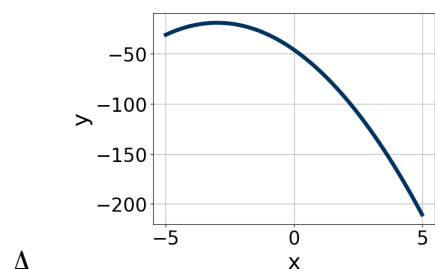
$$12x^2 - 11x - 36 = 0$$

- A.  $x_1 \in [-16.44, -15.72]$  and  $x_2 \in [26.49, 27.56]$
- B.  $x_1 \in [-3.53, -2.27]$  and  $x_2 \in [1.11, 1.35]$
- C.  $x_1 \in [-1.36, -0.79]$  and  $x_2 \in [1.98, 2.27]$
- D.  $x_1 \in [-0.82, 0.13]$  and  $x_2 \in [6.53, 7]$
- E.  $x_1 \in [-4.47, -3.68]$  and  $x_2 \in [0.71, 0.81]$

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8. Graph the equation below.

$$f(x) = -(x - 3)^2 - 19$$



E. None of the above.

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9. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$12x^2 + 7x - 9 = 0$$

- A.  $x_1 \in [-1.2, -0.18]$  and  $x_2 \in [0.9, 2.8]$
- B.  $x_1 \in [-2.69, -1.12]$  and  $x_2 \in [-0.1, 1.2]$
- C.  $x_1 \in [-22.99, -21.32]$  and  $x_2 \in [21, 23.8]$

- D.  $x_1 \in [-14.62, -14.4]$  and  $x_2 \in [5.7, 8.9]$
- E. There are no Real solutions.

- 
10. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d); b \leq d$ .

$$24x^2 + 2x - 15$$

- A.  $a \in [-0.18, 1.9]$ ,  $b \in [-24, -17]$ ,  $c \in [-0.9, 1.2]$ , and  $d \in [19, 23]$
- B.  $a \in [11.49, 13.43]$ ,  $b \in [-6, -1]$ ,  $c \in [1.4, 2.5]$ , and  $d \in [2, 11]$
- C.  $a \in [1.58, 2.63]$ ,  $b \in [-6, -1]$ ,  $c \in [10.2, 13.3]$ , and  $d \in [2, 11]$
- D.  $a \in [3.9, 5.36]$ ,  $b \in [-6, -1]$ ,  $c \in [4.6, 6.6]$ , and  $d \in [2, 11]$
- E. None of the above.
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